

CLAIMS

I claim:

1. A method for attaining access to a wireless communication network configured in a star layout utilizing a base station and a remote station wherein a packet frame is transmitted and received throughout the network, the method comprising the steps of:

discovering the network;

requesting access to the network by transmitting a registration packet;

granting access to the network by transmitting a grant packet;

assigning a temporary identifier to the remote station, the temporary identifier being associated with the remote station for a predetermined number of dwell periods;

monitoring the dwell periods during a transmission of a broadcast packet;

requesting to extend the use of the temporary identifier by transmitting a renewal request packet from the remote station, the requesting to extend the use of the temporary identifier further comprising:

providing a handle field populated with the temporary identifier of the remote station requesting renewal of its temporary identifier; and,

providing a renewal constant, the renewal constant being utilized by the base station to distinguish the renewal packet from the registration packet;

granting the request to extend the use of the temporary identifier; and,
removing the temporary identifier.

2. The method of Claim 1 wherein the registration packet comprises:

a packet identifier;

a request handle;

a serial number field including a factory assigned identifier;

a previous network identifier representing a previous network accessed by the remote station;

a receive sequence number for cooperating with an automatic-repeat request message utilized to ensure delivery of the registration packet during network communication with the remote station; and,

a transmit sequence number for cooperating with the automatic-repeat request message utilized to ensure delivery of the registration packet during network communication with the remote station.

3. The method of Claim 2 wherein the granting access to the remote station to enter the network comprises:

assigning a new handle to the remote station;

assigning a serial number field to the remote station, the serial number field comprising a unique serial number to the remote station; and,

assigning a time slot to be utilized by the remote station during network communication.

4. A protocol for a wireless communication network having a plurality of stations including a base station and a plurality of remote stations, the network being configured in a star layout for transmitting and receiving a plurality of packets of information throughout the network, the protocol comprising:

a broadcast message packet for providing global information of a network's configuration and status, the broadcast message packet being exclusively transmitted from the base station;

an acknowledge message packet for informing a transmitting station that a one of a plurality of packets of information was successfully received;

a data message packet for providing a higher-level application data;

a registration request message packet for requesting access to the network, the registration packet being sent from a one of the plurality of remote stations;

a grant message packet for granting access to the network, the grant packet being transmitted from the base station to the one of the plurality of remote stations; and,

a renewal message packet for requesting renewal of access to the network.

5. The protocol of Claim 4 wherein the broadcast message packet comprising:

5 a packet identifier field for distinguishing the broadcast message packet from the plurality of packets of information;

a duty cycle field for specifying a duty cycle parameter for the plurality of remote stations to power down during a dwell period;

a dwell length field for specifying a length of the dwell period to be utilized by the plurality of remote stations;

10 a timing field for timing registration events;

a time slot field for communicating a size of a time slot to the plurality of remote stations; and,

a partition field for determining an amount of sections the dwell period should be partitioned.

15 6. The protocol of Claim 4 wherein the data message packet comprises; a handle field for specifying a one of the plurality of remote stations the data message packet is received from or destined for;

a sequence field having an automatic repeat-request sequence number;

20 a payload field; and,

a length field for specifying a number of bits in the payload field, the payload field ranging from 0-255 bytes as specified by the length field.

25 7. The protocol of Claim 4 further comprising an access control packet selected from the group consisting of registration, renewal and grant packets.

8. The protocol of Claim 7 wherein the registration packet comprises:

a packet identifier field;

30 a handle field for requesting a handle preferred by a one of the plurality of remote stations;

a previous network field for informing the base station of the previous network to which the one of the plurality of remote stations requesting access may have belonged;

5 a receive sequence field being set to an initial value for a receive automatic repeat-request sequence number to be utilized for communication with the one of the plurality of remote stations;

a transmit sequence field being set to an initial value for a transmit automatic repeat-request sequence number to be utilized for communication with the one of the plurality of remote stations; and,

10 a serial number field comprising a factory assigned unique identifier for the one of the plurality of remote stations.

9. The protocol of Claim 7 wherein the grant packet comprising:

a packet identifier;

15 a serial number field for specifying a unique serial number associated with the one of the plurality of remote stations being granted permission to access the network;

a grant handle field for specifying a handle being assigned to the one of a plurality of remote stations;

20 a grant slot field for specifying a time slot utilized by the one of a plurality of remote stations;

a renewal handle field for specifying the one of the plurality of remote stations renewed by the base station; and,

25 a renewal slot field for specifying a renewal time slot assigned to the renewed one of the plurality of remote stations.

10. The protocol of Claim 7 wherein the renewal packet comprises:

a handle field comprising a handle identifier of a one of the plurality of remote stations transmitting the renewal request; and,

30 a constant field having a constant utilized by the base station to distinguish the renewal packet from the registration packet.

11. The protocol of Claim 4 wherein each of the plurality of packets of information comprises:

a header having a first byte and a second byte, the second byte further including a station identifier and a network number; and,
5 a trailer having an end-of-file (EOF) byte and a 24 bit checksum.

12. A method of communicating on a wireless network configured in a star layout having a base station and a plurality of remote stations wherein a packet frame is transmitted and received throughout the wireless network, the method comprising the steps of:

10 providing a plurality of control packets for network control wherein the base station utilizes the plurality of control packets to regulate access to the wireless network;

15 providing a plurality of message packets for transmitting information throughout the wireless network;

assigning a sequence number to a first message packet;

transmitting the first message packet;

receiving the first message packet;

20 transmitting the first message packet in response to a failure to receive an acknowledgment message packet; and,

transmitting the acknowledgment message packet.

13. The method of Claim 12 further including:

25 requesting access to the wireless network by transmitting a registration packet from a one of the plurality of remote stations;

granting access to the wireless network by transmitting a grant packet from the base station;

30 assigning a temporary identifier to the one of the plurality of remote stations, the temporary identifier being a handle associated with the one of the plurality of remote stations for a predetermined number of dwell periods; and,

monitoring the dwell periods during transmission of a broadcast packet.

14. The method of Claim 13 further comprising:

transmitting a renewal request packet requesting to extend the use of the
temporary identifier;

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granting the request to extend the use of the temporary identifier; and,
removing the temporary identifier.

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